2 ALTERNATIVES, INCLUDING THE PROPOSED ACTION

The CEQ *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* establish a number of policies for federal agencies, including "… using the NEPA process to identify and assess the reasonable alternatives to the Proposed Action that will avoid or minimize adverse effects of these actions on the quality of the human environment" (40 CFR 1500.2 (e)). This chapter presents a description of the alternatives development process, alternatives considered that meet the overall purpose and need of the proposed action, a discussion of the no action alternative, and a summary of environmental impacts of each alternative.

2.1 Alternatives Development Process

With an overall objective of finding a potential alternative location to conduct SFCP training that would reduce the high costs of training East Coast-based SFCPs, reduce the time East Coast Marine SFCP personnel are required to spend away from their homes and families, and optimize military commanders' flexibility in meeting quarterly SFCP training requirements, the Marine Corps determined that Camp Lejeune may be a good location to conduct SFCP training. This determination was based on the following:

- Camp Lejeune has the largest concentration of Marines on the East Coast and is home to eight SFCP teams, consisting of 10 Marines each.

- Camp Lejeune has established training areas for amphibious landings and live and non-explosive ordnance operations and currently hosts the vast majority of Marine Corps training exercises for the East Coast.

- Camp Lejeune is within close proximity (approximately 200 miles (320 km) from the Atlantic Fleet's concentration of naval vessels (Norfolk, VA).

In order to determine whether the SFCP training is feasible at Camp Lejeune, the Marine Corps proposes to conduct a one-day Feasibility Study of naval gunfire related to SFCP training.

Marine Corps operations and training personnel reviewed Camp Lejeune's training areas, using existing weapons safety footprints, and initially concluded that four areas had the potential to accommodate non-explosive and/or live NGF rounds necessary for the conduct of SFCP training (Figure 2-1). They were further evaluated as follows:

- **Greater Sandy Run Area (GSRA)** - Marine Corps personnel found that the GSRA was not a feasible alternative because it can accommodate only non-dud producing rounds

and that naval gun rounds would have to be fired over residential/commercial areas (portions of Onslow County).

- **K-2 Impact Area** - the K-2 Impact Area was eliminated as a feasible alternative because the water depth of Onslow Bay does not allow naval ships to get within range of the naval guns (approximately 12.4 miles (20 km)).

- **N-1/BT3 Impact Area on Brown's Island** - while an impact area can normally accommodate non-explosive and live ordnance, it was determined that Brown's Island could not safely accommodate live ordnance from NGF due to the proximity of the Atlantic Intracoastal Waterway (AIWW). Given this limitation, the earlier concept for test firing into the N-1/BT-3 Impact Area has been eliminated from further consideration.

- **G-10 Impact Area** – this area can accommodate both inert and live ordnance and is the proposed location for the SFCP Feasibility Study. Because of safety concerns regarding the skipping of inert ordnance, the Marine Corps had developed an earlier concept that included using the N-1/BT-3 Impact Area on Brown's Island for inert rounds. However, upon further evaluation by Camp Lejeune staff of gun targeting capabilities, and the ability to control skipping of inert ordnance through the azimuth of fire, the Marine Corps has determined that firing NGF rounds into the G-10 impact area has no greater chance of producing a skipped round than currently authorized and routinely conducted artillery fire into G-10. New NGF technology uses Global Positioning Systems (GPS), gyro-stabilized guns, and computer generated solutions, enhancing the accuracy of fire.

The firing of non-explosive and live rounds into the G-10 impact area is proposed for the Feasibility Study.

2.2 Proposed Action - Conduct SFCP Training Feasibility Study at Camp Lejeune

Under this alternative, a Feasibility Study for conducting SFCP training would occur at Camp Lejeune at the G-10 Impact Area (Figure 2-2) The information that would be gathered during this study would be used to determine if SFCP training is possible at Camp Lejeune. The Feasibility Study is proposed for one day no earlier than mid October 2001 and is not anticipated to last more than two hours.

The study event would be structured in two phases:

- **Phase I** - firing 12 non-explosive naval gun rounds, which are actually concrete encased in metal jackets, into the G-10 Impact Area at 10-second intervals. Data collected during this phase would allow the naval gunners the opportunity to more accurately refine the computer firing solutions and mitigate the risk of targeting error when using live rounds.

The test will involve observation by air and ground spotters, as well as use of the Weapons Impact Scoring System (radars to measure the accuracy of fire). If something goes wrong during the initial firing of inert rounds, the spotters can relay the information immediately, and the Commanding General, who will be on-site, can stop the test.

- **Phase II** - following the successful firing of inert naval gun rounds, and with the Commanding General's decision to proceed with Phase II, 12 live (explosive) rounds would be fired at 10-second intervals into the G-10 Impact Area. This would involve SFCPs calling in target coordinates from vantage points surrounding the G-10 impact area. SFCP personnel would adjust target coordinates, as necessary, in order to completely destroy the target.

One recently certified Navy destroyer would be used for firing the naval gun rounds. Certification refers to tested competence in the mission-essential tasks, relating to NGF, which naval ships are expected to execute during contingency operations. The Feasibility Study would use a ship with proven capability to hit its intended target. During the conduct of the study, the Navy destroyer would be located approximately 9.3 miles (15 km) from the G-10 Impact Area (along the periphery of the N-1/BT-3 Impact Area).

During both Phases I and II, portions of the AIWW, Lyman Road, and NC 172 would be closed as a safety precaution. Additionally, training areas GC, GD, GE, GH, and GI would be closed during the entire test.

2.3 No Action

Under the No Action alternative, the Feasibility Study for conducting SFCP training at Camp Lejeune would not take place. Without this study the Marine Corps would be unable to gather information in order to determine if Camp Lejeune is a feasible location for SFCP training. East Coast-based SFCP training would continue to be limited by the expense and inefficiencies involved with training personnel at either San Clemente Island or Vieques Island (Subchapter 1.2). Although the No Action alternative does not meet the Marine Corps' purpose and need, it is carried through this EA in order to provide a baseline from which the potential impacts of the proposed action can be compared and as an alternative available to the decision-maker.

2.4 Evaluation of Alternatives

The adverse and beneficial impacts of both the No Action Alternative and the Proposed Action are summarized in Table 2-1.

Table 2-1

Evaluation of Alternatives

Impact	Proposed Action	No Action Alternative
Land Use	The Feasibility Study would be of short duration and use existing ranges and facilities. Thus, there would be no impacts. With respect to Coastal Zone Consistency, the Marine Corps has concluded that the Feasibility Study is consistent to the maximum extent practicable with the Coastal Zone management Program of North Carolina. The NC Department of Environment and Natural Resources has concurred with this conclusion. Thus, there would be no significant land use impacts.	No impact.
Socioeconomics	The Feasibility Study would involve no permanent or temporary increase or relocation of personnel. It would involve only a small number of personnel in an SFCP (only 10 personnel), all of whom are currently stationed at Camp Lejeune. The action is consistent with the two Presidential Executive Orders on Environmental Justice (EO 12898 and 13045). Thus, there would be no significant socioeconomic impacts.	No impact.
Community Facilities and Services	The Feasibility Study does not involve relocation of, or increases in the number of, personnel at Camp Lejeune. The participating personnel in the SFCP would already be stationed at Camp Lejeune. Thus, there would be no increase in demand for community facilities and services and no significant impacts.	No impact.
Transportation	NC 172, Lyman Road, and the Atlantic Intracoastal Waterway (AIWW) would be temporarily closed for two one-hour periods during the day of the study. Camp Lejeune has procedures in place for closure of roadways (MCP 3570.1A) and has temporarily closed roads on prior occasions. The Navy has coordinated with both the Corps of Engineers and the Coast Guard concerning the proposed temporary closure of the AIWW, which has been closed in the past. Thus, there would be no significant transportation impacts.	No impact.
Air Quality	The testing is of short duration and the explosive products from the live rounds are similar to those generated by ongoing training activities at Camp Lejeune. The detonation process, including the continued combustion that occurs in the plume immediately after initial detonation, results in nearly complete combustion of these explosive compounds to form oxides of carbon, nitrogen, and water. Thus, there would be no significant air quality impacts.	No impact.
Noise	Noise from troop movements would not be significant as only 10 personnel would be involved. Noise from sonic booms from incoming rounds would be within standards to protect swimmers and would be more than 10 miles (16 kilometers) from the closest populated or public areas. Thus, there would be no significant noise impacts.	No impact.
Infrastructure	The SFCP would be made up of 10 personnel, all of whom are currently based at Camp Lejeune. No additional troops would be stationed at Camp Lejeune for this Feasibility Study. Therefore, there	No impact.

	would be no impacts to water supply, wastewater treatment, or solid waste facilities.	
Cultural Resources	All known architectural and archeological National Register sites are clearly marked and avoided during military training exercises. Furthermore, the areas to be used for the Feasibility Study have been extensively disturbed during previous training exercises. Thus, there would be no significant impacts to cultural resources.	No impact.
Water Resources	The inert shells are composed essentially of concrete and would not adversely affect water quality. The explosive products from the live shells are similar to those generated by ongoing training activities in G-10. The nearly complete combustion of explosive compounds would result in little contaminants being deposited on the ground. Thus, there would be no significant water resource impacts.	No impact.
Marine Natural Resources	The sounds generated by 5"/54 naval gun firing would all be below injury and harassment levels for marine mammals beyond 98 ft (30 m) from the ship. The closeness of the 98 ft (30 m) radius in conjunction with the standard operating procedures that would be implemented by the Navy to watch for the presence of marine mammals and abort operations until the area has been cleared if marine mammals are present would ensure that no marine mammals would be harassed. Ship collisions with marine mammals and sea turtles would be avoided through a series of mitigation measures. Potential, but unlikely, impacts to fish would not have a significant effect on overall fish stocks. No impacts to Sargassum, live/hard bottom habitat, or coral reefs would occur. Thus, there would be no significant impacts to marine natural resources .	No impact.
Land Natural Resources	The G-10 Impact Area has been used historically, and is still used, for live fire training. Camp Lejeune has managed G-10 area in regards to this mission and has also incorporated mitigation measures, for example, for the present red-cockaded woodpecker and rough-leaved loosestrife habitats. Thus, it has been determined that the Feasibility Study is not likely to affect threatened and endangered species. In summary, there would be no significant impacts to land natural resources.	No impact.
Hazardous Materials/Waste	Detonation of the live rounds results in the nearly complete combustion of explosive compounds. Thus, it is unlikely that significant quantities of any compounds would be released to the environment. Marine Corps personnel will follow Base Order MCO P3570.1 with regard to the handling of hazardous materials; petroleum, oils, and lubricants; and, unexploded ordnance. Thus, there would be no significant with respect to hazardous materials or wastes.	No impact.
Safety	The principal safety issue with respect to the Feasibility Study is the potential for inert rounds to skip. The Marine Corps has determined that firing NGF rounds into the G-10 impact area has no greater chance of producing a skipped round than currently authorized and routinely conducted artillery fire into G-10. New NGF technology uses Global Positioning Systems (GPS), gyro-stabilized guns, and computer generated solutions, enhancing the accuracy of fire Thus, there would be no significant safety impacts (refer to Section 4.13).	No impact.

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